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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/549,593

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Katsuhiro Fujimoto

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EXAMINER

LEE, DORIS L

ART UNIT

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1796

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/549,593	<b>Applicant(s)</b> FUJIMOTO ET AL.	
	<b>Examiner</b> Doris L. Lee	<b>Art Unit</b> 1796	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 May 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-8, 14-22, 25 and 29-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8, 14-22, 25 and 29-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)         | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 21, 2010 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. **Claims 1-3, 5-6, 14-17, 29-31** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kelsey et al (US 6,093,789)** in view of **Ciba Irganox 5057 documentation (referred to as the "Ciba document")**.

**Regarding claim 1 and 29-31**, Kelsey teaches a polytrimethylene terephthalate composition (Abstract) comprising a polymer component (col. 2, lines 39-53) and a hindered phenolic antioxidant (col. 3) which fulfills the structural requirements of components A. The polytrimethylene terephthalates has more than 50 mol percent is composed of trimethylene terephthalate repeating units (col. 2, lines 39-53). Kelsey teaches that at least 50 mole percent of the diacid to make the polyester is terephthalic acid (col. 2, lines 44-45) and that the other diols can be ethylene glycol or 1,4 butanediol

Art Unit: 1796

(col. 2, lines 45-47). Therefore, 0-50% of the polymer component can be polyethylene terephthalate or polybutylene terephthalate.

However, Kelsey fails to teach the addition of a secondary amine which fulfills the structure of Component B.

The Ciba Document teaches an antioxidant (Irganox 5057) which fulfills the limitations of Component B.

It would have been obvious to a person of ordinary skill in the art at the time of the invention to add the Irganox 5057 to the composition of Kelsey. One would have been motivated to do so in order to receive the expected benefit of, when used in conjunction with hindered phenols, provides excellent protection against thermal degradation (Ciba document, Features and Benefits section). They are combinable because they are concerned with the same field of endeavor, namely resins with stabilizers.

**Regarding claim 2**, modified Kelsey teaches that Irganox 5057 is used in an amount from 1000 to 4000 ppm (Ciba document, Guidelines for use), at this amount, the Irganox 5057 is present from 0.001 to 1.0 milliequivalent per mold of trimethylene terephthalate repeating units.

**Regarding claim 3**, modified Kelsey teaches that both the phenolic compound and the amine compound are stabilizers (Ciba document, Guideline for use).

**Regarding claim 5**, modified Kelsey teaches that Irganox 5057 is made from a reaction of benzenamine and 2,4,4,-trimethylpentene (Ciba Document).

**Regarding claim 6**, it is noted that component C is not mandatorially present in the composition.

**Regarding claim 14**, Kelsey teaches that the polytrimethylene terephthalate composition of claim 1 can be made into a fiber or molded article (col. 6, lines 20-23).

**Regarding claim 15**, modified Kelsey teaches that both the phenolic compound and the amine compound are stabilizers (Ciba document, Guideline for use).

**Regarding claim 16**, modified Kelsey teaches that Irganox 5057 is made from a reaction of benzenamine and 2,4,4,-trimethylpentene (Ciba Document).

**Regarding claim 17**, it is noted that component C is not mandatorially present in the composition.

4. **Claims 7-8, 18-22 and 25** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Kelsey et al (US 6,093,789)** in view of **Ciba Irganox 5057 documentation (referred to as the "Ciba document")**, **Kikuchi et al (US 4,897,438)**.

The discussion regarding Kelsey in paragraph 3 above is incorporated here by reference.

**Regarding claims 7-8 and 18-19**, Kelsey fails to teach the addition of a compound with a thioether group.

Kikuchi teaches a polyester resin composition (col. 6, lines 64-68) in which a thioether compound is added in an amount of 0.01 to 5 parts by weight per 100 parts by weight of the synthetic resin (col. 7, lines 5-21).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to add the thioether compound as taught by Kikuchi to the composition as

Art Unit: 1796

taught by Kelsey. One would have been motivated to do so in order to improve the oxidation stability remarkably (Kikuchi, col. 7, lines 5-10). They are combinable because they are concerned with the same field of endeavor, namely stabilized polyesters.

**Regarding claims 20-22**, Kelsey teaches that the polymer component has more than 50 mol percent is composed of trimethylene terephthalate repeating units (col. 2, lines 39-53). Kelsey teaches that at least 50 mole percent of the diacid to make the polyester is terephthalic acid (col. 2, lines 44-45) and that the other diols can be ethylene glycol or 1,4 butanediol (col. 2, lines 45-47). Therefore, 0-50% of the polymer component can be polyethylene terephthalate or polybutylene terephthalate.

**Regarding claim 25**, Kelsey teaches that the polytrimethylene terephthalate composition of claim 22 can be made into a fiber or molded article (col. 6, lines 20-23).

### ***Response to Arguments***

5. The amendments to table 1 of the specification filed on May 17, 2010 has been acknowledged and entered.

6. Applicant's arguments filed May 17, 2010 have been fully considered but they are not persuasive for the reasons set forth below:

7. **Applicant's arguments:** Kelsey does not teach a combination of Component A and B together.

**Examiner's response:** *This has been remedied by the addition of a secondary reference which was necessitated by the applicant's amendment.*

Art Unit: 1796

8. **Applicant's arguments:** Applicants claim unexpected results from the synergistic combination of Component A and Component B. Applicants point to the examples in the specification for support, the examiner refers to these as arguments (i), (ii) and (iii)

**Examiner's response:** *Regarding argument (i), the applicant points out that Example 1 shows a significant suppression of acrolein compared to that of Comparative Example 2. The examiner's response is that this is not an unexpected showing as the amount of stabilizer has increased from 0.15 in Comparative Example 2 to  $0.15 + 0.49$  in Example 1. Hence the associated suppression of acrolein is not surprising or unexpected. Regarding argument (ii), it is the examiner's position that this argument is unpersuasive because nylon 6,6 (which is used as a comparative amine) is not a stabilizer and Irganox 5057 is a known stabilizer. As such, the fact that an amine which is a known stabilizer will suppress the acrolein in a more dramatic manner. Hence, the data is not unexpected. Regarding argument (iii), this is also unpersuasive as there is no data which shows the formamidine component by itself to gauge the color deterioration caused by this component. It is also noted that that amounts of the different components in Example 1, Comparative Example 1 and Comparative Example 5 vary significantly, so a proper side-by-side comparison cannot be made.*

### **Conclusion**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Doris L. Lee whose telephone number is (571)270-3872.

Art Unit: 1796

The examiner can normally be reached on Monday - Thursday 7:30 am to 5 pm and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571)272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Doris L Lee/  
Examiner, Art Unit 1796

/Vasu Jagannathan/  
Supervisory Patent Examiner, Art Unit 1796